

**REMARKS**

Pending in the application are claims 1-18 and 34-36, of which claims 1, 17, 18 and 34 are independent. Applicants respectfully request reconsideration of the following rejections for at least the reasons provided below.

**35 U.S.C. 102 Rejection**

In the Office Action, the Examiner rejects claims 1, 12, 13 and 34 under 35 U.S.C. 102(b) as being anticipated by Itakura (U.S. Patent Number 5,365,076). Applicants respectfully traverse this rejection, and submit that the claims are patentably distinct over the Itakura reference, since the Itakura reference does not teach or suggest the radiation source recited in independent claim 1 or the nuclear imaging system recited in independent claim 34.

The Itakura reference is directed to a radiation image recording apparatus for storing a radiation image of an object on a stimuable phosphor sheet. The stimuable phosphor sheet is housed in a cassette comprising a thin box member. To create an image of an object, the phosphor sheet is exposed to radiation that passes from a radiation source through the object to be imaged and carries image information of the object. The phosphor sheet receives and stores the radiation from the radiation source to create the image of the object.

According to the Examiner, the Itakura reference teaches a radiation source, denoted by reference number 30, comprising an outer housing 70 having a fastener 72 that is configured to be opened, a substrate 80 having a front surface removably contained within the housing, and a radioactive deposit inherently having a radioisotope depositing upon the front surface.

Applicants respectfully disagree and note that the Examiner's understanding of the Itakura reference is incorrect. Contrary to the Examiner's assertion, in Itakura, the radiation source 30 is a separate and different component from the cassette 70, which is not itself a radiation source. The cassette 70 does not emit radiation and merely houses a phosphor sheet 80 that receives radiation *from* a radiation source. Figure 12 clearly illustrates that the cassette 70 and radiation source 30 are separate elements. Therefore, the radiation source 30

of Itakura cannot include the component designated by reference number 70 as an outer housing, as alleged by the Examiner.

Moreover, the radiation source 30 described in Itakura is different from the presently claimed radiation source. For example, the Itakura reference does not teach or suggest that the radiation source includes an outer housing having a fastener, as recited in independent claims 1 and 34. The Itakura reference also does not teach or suggest that the radiation source includes an outer housing that is configured to be opened, as also recited in independent claims 1 and 34. The Itakura reference also fails to teach or suggest a radiation source that includes a substrate that is removably contained within an outer housing, or a radioactive deposit on a front surface of a substrate, as also recited in claims 1 and 34. Indeed, the Itakura reference is entirely silent as to the features and configuration of the radiation source 30, and therefore fails to teach or suggest the features recited in independent claims 1 and 34.

In particular, the phosphor sheet 80, which the Examiner considers to be a substrate, is not part of the radiation source. Furthermore, the phosphor sheet 80 does not include a radioactive deposit on a surface thereof, as recited in independent claims 1 and 34. In fact, the Itakura reference teaches *away* from the phosphor sheet having a radioactive deposit on a surface thereof, because, as described above, the phosphor sheet *receives*, rather than emits, radiation from a radioactive source. Were the phosphor sheet itself to include a radioactive deposit, the imaging of an object, a key goal of the Itakura reference, could not occur. Therefore, neither the cassette 70, nor the phosphor sheet 80, nor any other component of the cassette 70, can be considered a radiation source, since the cassette and the components housed therein are specifically configured to *receive* radiation, rather than *emit* radiation.

Furthermore, the cassette 70, which is *not* a radiation source, does not include a fastener, as presently claimed. The so-called fastener 72 cited by the Examiner is merely a cover member for opening and closing an opening of the box member forming the cassette. The Itakura reference does not teach or suggest that the cover member includes any component that *fastens* the cassette to selectively prevent opening of the cassette.

For at least these reasons, the features of claims 1, 12, 13 and 34 are neither taught nor suggested by the Itakura reference.

### 35 U.S.C. 103 Rejections

The Examiner rejects claims 2-11, 14-18 and 35-36 as being unpatentable over the Itakura reference in view of the Peterson et al. reference (WO 01/84560). Applicants regretfully disagree. The Peterson reference does not compensate for the above-discussed deficiencies of the Itakura reference. The Peterson reference, which describes a radiation flood source including a flat substrate and a radioactive coating, does not teach or suggest a radiation source having *an outer housing having a fastener that is configured to be opened*, as recited in independent claims 1 and 34. The Peterson reference also does not teach or suggest a radiation source having a substrate that is *removably contained* within an outer housing, as also recited in independent claims 1 and 34. Accordingly, independent claims 1 and 34 are patentable over the Itakura reference and the Peterson reference.

Similarly, independent claims 17 and 18 also recite a radiation source including *an outer housing configured to be opened and having a fastener* and a substrate *removably contained* within the outer housing. As described above, these features are neither taught nor suggested in the cited references.

Moreover, because claims 2-11 and 14-16 depend from claim 1, and claims 35-36, depend from claim 34, these claims also are patentable over the Itakura reference and the Peterson reference.

The dependent claims also recite additional patentable features that are neither taught nor suggested by the Itakura reference or the Peterson reference. For example, claim 3 recites that the substrate having the radioactive deposit deposited thereon has a first form factor when contained within an outer housing, and can have a second form factor that is smaller than the first form factor when the substrate is removed from the outer housing. These features are neither taught nor suggested by the Itakura reference or the Peterson reference.

According to the Examiner, having a first and second form factor is obvious, since the Peterson reference describes a substrate formed of a flexible material. However, claim 3 recites that the form factor is different depending on whether the substrate is within the outer housing of the radiation source or removed from the outer housing. Since the cited references do not teach or suggest a radiation source having an outer housing, or a radiation source having a substrate that can be removed from the outer housing, it would not be obvious for a form factor to change when a substrate is removed from an outer housing. In fact, the Peterson reference specifies that it is preferably for the substrate to be flat (see page 7, line 24), which teaches *away* from changing the form factor of a substrate having a radioactive deposit.

Claim 7 recites that the substrate can be radiopaque, a feature neither taught nor suggested in the cited references. According to the Examiner, because the Peterson reference teaches that the substrate may be made from any suitable material, it would be obvious for the substrate to be radiopaque. However, the Peterson reference does not teach or suggest that radiopacity is a preferable or desired attribute of the substrate, or that a radiopaque material would be a “suitable” material for making the substrate.

Claims 14-16 and 35 recite that the radiation source includes a second substrate with a second radioactive deposit deposited thereon, a feature neither taught nor suggested in the cited references. Since the Peterson reference does not teach or suggest a radiation source including an outer housing, the Peterson reference fails to teach or suggest a second substrate within an outer housing. Furthermore, the use of a second substrate to achieve a desired radioactivity level is not obvious from the Peterson reference, since the Peterson reference only describes modifying the radioactive coating on the substrate or adding an additional radioactive coating to the substrate to vary a radioactivity level, rather than combining a plurality of substrates together.

**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be patentable and in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. NAI-002 from which the undersigned is authorized to draw.

If the Examiner deems there are any remaining issues, we invite the Examiner to call the undersigned at (617) 227-7400.

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Respectfully submitted,

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